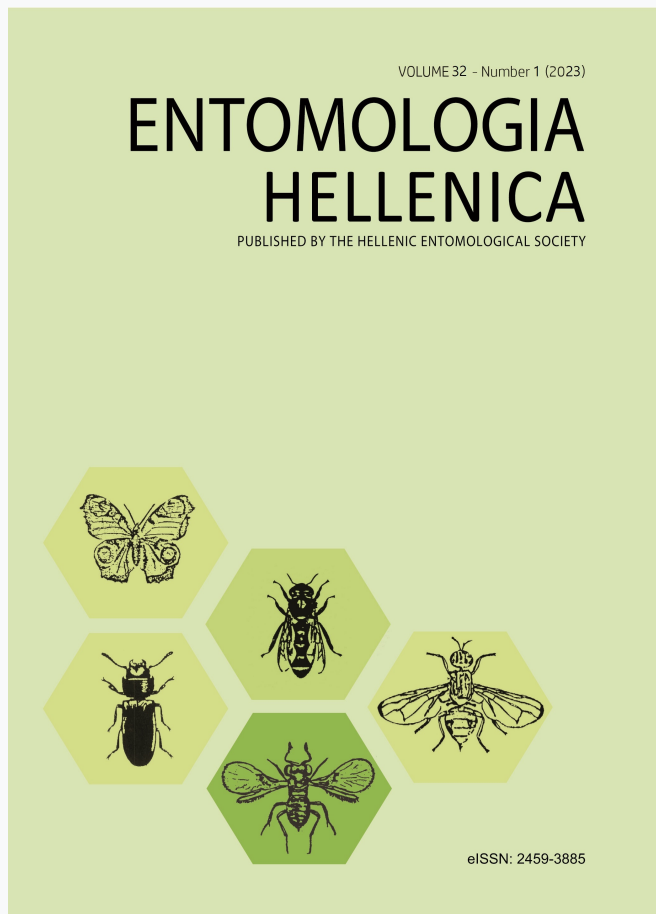


ENTOMOLOGIA HELLENICA

Vol 32, No 1 (2023)

Entomologia Hellenica 32(1)



First record of the Lycian Bright Bush-Cricket *Poecilimon inflatus lyciae* (Orthoptera: Tettigoniidae) in Greece

*Christos Kazilas, Konstantinos Kalaentzis, Panagiotis
Drakopoulos, Luc Willemse*

Copyright © 2023, Christos Kazilas, Konstantinos Kalaentzis,
Panagiotis Drakopoulos, Luc Willemse



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/).

To cite this article:

Kazilas, C., Kalaentzis, K., Drakopoulos, P., & Willemse, L. (2023). First record of the Lycian Bright Bush-Cricket *Poecilimon inflatus lyciae* (Orthoptera: Tettigoniidae) in Greece. *ENTOMOLOGIA HELLENICA*, 32(1), 7–11. Retrieved from <https://ejournals.epublishing.ekt.gr/index.php/entsoc/article/view/31411>



First record of the Bright Bush-Cricket *Poecilimon inflatus lyciae* (Orthoptera: Tettigoniidae) from Greece

C. KAZILAS^{1*}, K. KALAENTZIS^{1,2}, P. DRAKOPOULOS³,
L. WILLEMSE¹

¹Naturalis Biodiversity Center, PO Box 9517, 2300 RA Leiden, The Netherlands

²Hydrobiological Station of Rhodes, Hellenic Centre for Marine Research, Cos Street, 85100 Rhodes, Greece

³Anthimou Gazi 7, 26331 Patra, Greece

ABSTRACT

The Bright Bush-Cricket, *Poecilimon inflatus lyciae* is reported for the first time from Greece in the island of Kastellorizo (Dodecanese). The study contributes to the knowledge of the biodiversity of Kastellorizo archipelago, which remains widely understudied.

KEY WORDS: Barbitistini, entomofauna, Kastellorizo, Phaneropterinae.

Introduction

Poecilimon Fischer, 1853 is one of the largest genera within the Tettigoniidae, with a total of 145 species currently described (Cigliano et al. 2022). Bush-crickets belonging to this genus are distributed across the Palearctic, from Italy, central and southeastern Europe to central Asia (Bey-Bienko 1954). The Aegean region forms the core of the genus range; Greece in particular, is at the forefront of *Poecilimon* diversity in Europe, with 45 representatives recorded across the country (Willemse et al., 2018; Lemonnier-Darcemont & Darcemont, 2020).

Based on molecular, morphological and bioacoustic criteria, two subgenera and 17 species groups are distinguished within *Poecilimon*, with many taxa still requiring allocation to a group (Cigliano et al. 2022). One of the species groups is the *Poecilimon jonicus* group which includes species sharing similarities in morphology and song structure (Heller 1984, 1988, 2004).

Recently the evolution within this group and its correlation to paleogeographic events was studied by Borissov et al. (2020). The molecular phylogenetic analyses of the above study confirmed the composition of the group, indicated a robust phylogeny and revealed links between the evolution of this group and paleogeographical events of the Aegean. The *Poecilimon jonicus* group currently encompasses 11 species, including taxa transferred from the former *Poecilimon inflatus* group, which no longer exists (Kaya et al., 2018; Borissov et al., 2020). In Greece, six species of the *P. jonicus* group are present: *P. cretensis* Werner, 1903 from Crete and some of the Cyclades islands, *P. erimanthos* Willemse & Heller, 1992 from the area around Mt. Erymanthos in the Peloponnese, *P. jonicus* (Fieber, 1853) from the western mainland and some Ionian islands, *P. laevissimus* (Fischer, 1853) from the western Peloponnese, some Ionian islands and a few fragmented areas in Central Greece, *P. tessellatus* (Fischer, 1853) from the Peloponnese, and *P.*

*Corresponding author: ckazilas@gmail.com

weneri Ramme, 1993 from the southwestern edge of the Greek mainland and northwestern Peloponnese (Fig. 1).

Except for *P. superbis*, which is restricted to Italy, the other four species belonging to the *P. jonicus* group (*P. antalyaensis*, *P. inflatus*, *P. isopterus* and *P. martinae*), occur in southwestern Anatolia. Here we report *P. inflatus* for the first time from Kastellorizo, one of the islands of the Dodecanese, in Greece.

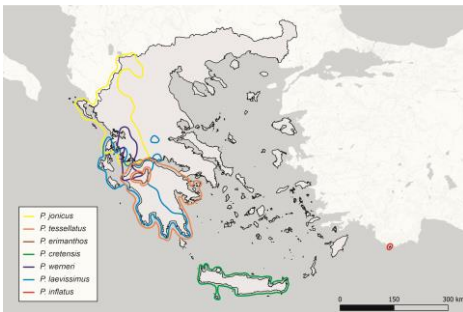


FIG. 1: Distribution of the members of the *Poecilimon jonicus* group in Greece. The range of *P. inflatus lyciae*, which is herein reported from the country for the first time, is shown in red.

Materials and Methods

On May 4th, 2017, two individuals of *Poecilimon* sp. were recorded and photographed near the settlement of Megisti in Kastellorizo, in an area covered with typical Mediterranean low-lying shrubs (phrygana), but no specimen was collected at the time. A few years later, on May 27th, 2022, the island was surveyed again, and three *Poecilimon* individuals were collected from Palaiokastro. Once again, the specimens were found in an area covered with phrygana. Afterwards, all collected specimens and photographic material were identified based on the determination key by Kaya et al. (2018) and were deposited in the collection of Naturalis Biodiversity Center (RMNH).

Results

The three collected specimens and the two previously photographed individuals were identified as *P. inflatus lyciae*. The diagnostic characters used for distinguishing *P. inflatus lyciae* from its allies are the following: the number of stridulatory teeth is higher than 100; the male cerci are almost straight; the female subgenital plate has a widely rounded posterior margin; and the male paraproct is almost straight at the posterior margin (Fig. 2, Kaya et al. 2018).

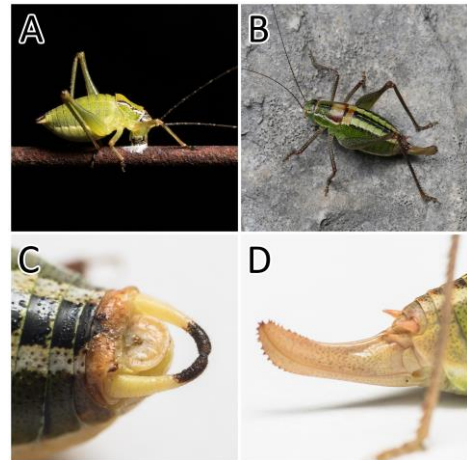


FIG. 2: Individuals of *P. inflatus lyciae* found in Kastellorizo, Greece. Depicted are a last instar juvenile male (A) and a female (B) specimen found on 4 May 2017, as well as close-ups of the male cerci (C) and the female ovipositor (D) from two specimens collected on 27 May 2022. Photos by K. Kalaentzis.

Poecilimon inflatus lyciae

Kaya & Çiplak, 2018

GREECE – Dodecanese, Kastellorizo: Kastellorizo (Megisti); N 36.146526°, E 29.591032°; 4.V.2017, K. Kalaentzis & C. Kazilas obs.; 1♂ 1♀; direct sighting (Fig. 2A, 2B); Palaiokastro; N 36.1482859°, E 29.5769310°; 27.V.2022, P. Drakopoulos

leg.; 2♂ 1♀(RMNH). Material has been deposited in the collection of Naturalis Biodiversity Center (RMNH).

Discussion

The discovery of *P. inflatus lyciae* on Kastellorizo raises the number of *P. jonicus* species group representatives in Greece to seven, and the overall number of *Poecilimon* species in the country to 46.

Despite the fact that the description of *P. inflatus* took place over 100 years ago (Brunner von Wattenwyl 1891), there is still limited to zero information on the ecology or biology of this taxon. The majority of the current studies involving this group of species focuses on the phylogenetic relationships and the resolution of their taxonomic status (Kaya et al. 2012, Sevgili et al. 2018, Kociński et al. 2021, Borissov et al., 2021, 2023). Besides a clear understanding of the taxonomy, a better understanding of feeding habits, habitat and biology of *Poecilimon* representatives is equally important to gain further knowledge that may aid future conservation efforts.

Kastellorizo, along with its surrounding islets, constitutes the easternmost part of Greece. The flora and fauna of this island is characterized heavily by Anatolian elements, compared to the rest of Greece. Past studies have indicated that the Kastellorizo archipelago hosts an astonishingly high number of invertebrate (Mylonas et al. 2019) and vertebrate organisms (Kalaentzis et al. 2018a) in proportion to its area and has contributed to the documentation of species new to the country (Kalaentzis et al. 2018a, Strachinis et al. 2018), as well as the discovery of known taxa with unique phenotypes (Kalaentzis et al. 2018b, Kazilas et al.

2018). Unless more effort is directed towards additional surveys to study the rich biodiversity of this archipelago, it will evidently remain understudied.

Acknowledgments

We would like to wholeheartedly thank the anonymous reviewers for their corrections and constructive comments on the manuscript.

References

- Bey-Bienko, G.Y. 1954. Orthoptera. Vol. II, Sect. 2. Leaf bushcrickets (Phaneropterinae). Fauna of the USSR. Zoological Institute of the Academy of Sciences of the USSR, New Series 59, 385 pp.
- Borissov, S., Bobeva, A., Çiplak, B. and D. Chobanov. 2020. Evolution of *Poecilimon jonicus* group (Orthoptera: Tettigoniidae): a history linked to the Aegean Neogene paleogeography. *Diversity & Evolution* 20: 803-819.
- Borissov, S.B, Hristov, G.H. and D.P. Chobanov, 2021. Phylogeography of the *Poecilimon ampliatus* species group (Orthoptera: Tettigoniidae) in the context of the Pleistocene glacial cycles and the origin of the only thelytokous parthenogenetic phaneropterine bush-cricket. *Arthropod Systematics & Phylogeny* 79: 401-418
- Borissov, S.B., Heller, K.-G., Çiplak, B. and D. Chobanov, 2023. Origin, evolution and systematics of the genus *Poecilimon* (Orthoptera: Tettigoniidae)—An outburst of diversification in the Aegean area. *Systematic Entomology* 48: 198-220.
- Brunner von Wattenwyl, C. 1891. Additamenta zur Monographie der Phaneropteriden. *Uerhandlungen der k.*

- k. Zoologisch- Botanischen Gesellschaft Wien 41: 1–196.
- Cigliano, M.M., H. Braun, D.C. Eades and D. Otte. 2022. Orthoptera Species File. Version 5.0/5.0. Available at: <http://Orthoptera.SpeciesFile.org>. Accessed on 13 August 2022.
- Heller, K.-G. 1984. Zur Bioakustik und Phylogenie der Gattung *Poecilimon* (Orthoptera, Tettigoniidae, Phaneropterinae). *Zoologische Jahrbücher, Abteilung für Systematik, Oekologie und Geographie der Tiere*, 111, 69–117.
- Heller, K.-G. 1988. *Bioakustik der europäischen Laubheuschrecken*. Verlag Josef Margraf, Weikersheim, 358 pp.
- Heller, K.-G. 2004 *Poecilimon martinae* n. sp. and *P. inflatus* Brunner von Wattenywl, 1891 (Orthoptera, Tettigoniidae, Phaneropteridae), two bush-cricket species endemic to southwest Anatolia: morphology, bioacoustics and systematics. *Articulata*, 19, 1–17.
- Kalaentzis, K., C. Kazilas and I. Strachinis. 2018b. Two cases of melanism in ring-headed dwarf snake *Eirenis modestus* (Martin, 1838) (Serpentes: Colubridae) from Kastellorizo, Greece. *Herpetol. Notes* 11: 175–178.
- Kalaentzis, K., I. Strachinis, P. Katsiyiannis, P. Oefinger and C. Kazilas. 2018a. New records and an updated list of the herpetofauna of Kastellorizo and the adjacent islet Psomi (Dodecanese, Greece). *Herpetol. Notes* 11: 1009–1019.
- Kazilas, C., K. Kalaentzis and I. Strachinis. 2018. A case of piebaldism in the Anatolian Worm Lizard, *Blanus strauchi* (Bedriaga, 1884), from Kastellorizo Island, Greece (Squamata: Blanidae). *Herpetol. Notes* 11: 527–529.
- Kaya, S., B. Çıplak, D. Chobanov and K.G. Heller. 2012. *Poecilimon bosphoricus* group (Orthoptera, Phaneropterinae): iteration of morpho-taxonomy by song characteristics. *Zootaxa* 3225(1): 1–71.
- Kaya, S., D. Chobanov, K.G. Heller, Ö. Yahyaoğlu, O. Uluar and B. Çıplak. 2018. Review of *Poecilimon* species with inflated pronotum: description of four new taxa within an acoustically diverse group. *Zootaxa* 4462(4): 451–482.
- Kociński, M., B. Grzywacz, G. Hristov and D. Chobanov. 2021. A taxonomic outline of the *Poecilimon affinis* complex (Orthoptera) using the geometric morphometric approach. *PeerJ* 9: e12668.
- Mylonas, M., K. Vardinoyannis and N. Poulakakis. 2019. A contribution to knowledge on the terrestrial malacofauna of the Kastellorizo (Megisti) island group (SE Greece). *J. Biol. Res. (Thessalon.)* 26(1): 1–9.
- Lemonnier-Darcemont, M. and C. Darcemont. 2020. Presence of *Poecilimon pechevi* Andreeva, 1978 (Orthoptera, Phaneropterinae) on Orvilos mountain, Greece. *Articulata* 35: 87–91.
- Sevgili, H., D. Şirin, K.G. Heller and M. Lemonnier-Darcemont. 2018. Review of the *Poecilimon* (*Poecilimon*) *zonatus* species group and description of new species from Turkey with data on bioacoustics and morphology (Orthoptera: Phaneropterinae). *Zootaxa* 4417(1): 1–62.
- Strachinis, I., K. Kalaentzis, P. Katsiyiannis and C. Kazilas. 2018. First record of the Egyptian fruit bat, *Rousettus aegyptiacus* (Pteropodidae), from Kastellorizo island, Greece. *Mammalia* 82(6): 611–613.
- Willemse, L.P.M., R.M.J.C. Kleukers and B. Odé. 2018. The grasshoppers of Greece. EIS Kenniscentrum Insecten & Naturalis Biodiversity Center, Leiden. 439 pp.

Πρώτη καταγραφή του είδους *Poecilimon inflatus lyciae* (Orthoptera: Tettigoniidae) στην Ελλάδα

**X. ΚΑΖΙΛΑΣ^{1*}, Κ. ΚΑΛΑΕΝΤΖΗΣ^{1,2}, Π. ΔΡΑΚΟΠΟΥΛΟΣ³,
L. WILLEMSE¹**

¹Naturalis Biodiversity Center, PO Box 9517, 2300 RA Leiden, The Netherlands

²Υδροβιολογικός Σταθμός Ρόδου, Ελληνικό Κέντρο Θαλάσσιων Ερευνών, Οδός Κω, 85100
Ρόδος, Ελλάδα

³Ανθίμου Γαζή 7, 26331 Πάτρα, Ελλάδα

ΠΕΡΙΛΗΨΗ

Σε αυτή την εργασία παρουσιάζουμε την πρώτη καταγραφή του είδους *Poecilimon inflatus lyciae* στην Ελλάδα, (Δωδεκάνησα). Η παρούσα μελέτη συμβάλλει στη διεύρυνση των γνώσεων σχετικά με τη βιοποικιλότητα των νησιών του Αρχιπέλαγους του Καστελλόριζου, η οποία παραμένει σε μεγάλο βαθμό ανεξερεύνητη.